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EFFECT OF VITAMIN E (E) SUPPLEMENTATION ON PLASMA E AND IMMUNE RESPONSE OF YOUNG AND OLD BEAGLE DOGS. M Meydani, D Wu, MG Hayek, KR Martin, SN Meydani. JM USDA HNRCA at Tufts Univ, Boston, MA 02111; and Iams Co, Lewisburg, OH 45338

Aging is associated with dysregulation of the immune system, with changes mainly occurring in T cell function. We have reported that optimal E levels are critical for maintenance of the immune response in aged humans and animals. We sought to determine if E supplementation would enhance the immune response of companion animal dogs. Ten old (7.5-11.1 y) and 10 young (0.9-4.4 y) beagles were fed diet supplemented with E (280 IU/kg) (E diet) for 8 wk. Ten old and 10 young age-matched dogs, used as controls, were fed basal diet containing the NRC-recommended level of 27 IU/kg E (C diet). One mo prior to the study, all dogs were fed C diet to stabilize their E levels. Prior to supplementation, old dogs had lower mitogenic response than young. Old dogs' mononuclear cells produced a higher level of H_2O_2 than those of young dogs. C diet reduced plasma E levels due to the lower E level in the C diet compared with commercial dog chow (60 IU/kg). Young controls had a higher decrease in plasma E levels than old (50% vs. 35%, respectively). Supplemented dogs had increased plasma E levels, with young dogs exhibiting a higher increase than old (50% vs. 20%, respectively). Young, but not old, controls also had a decrease in mitogenic response, whereas E-supplemented dogs did not show such a decrease. Thus, as we have previously reported in mice, young and old dogs respond differently to changes in dietary E level, with young dogs being more responsive. This difference might imply a differential requirement for young and old dogs. Supported by USDA, ARS Contract #53-K06-01 and a grant from Iams Co.